Safe & Effective Disinfecting

According to the Federal Center for Disease Control, a thorough cleaning of sinks, toilets, doorknobs, and other hard surfaces that people frequently touch is the first and most important step in preventing the spread of disease.

Even though a good cleaning removes many of the germs living on these surfaces, the ones left behind soon begin to grow and reaccumulate. Therefore, to be safe most janitors also use a disinfectant product to kill the bacteria and viruses that are present. It usually isn't possible to kill everything, including spores. Doing so would require the use of a sterilizer (such as hospitals use for medical equipment).

Disinfectant products work by oxidizing the germs, breaking down their cell walls, or otherwise deactivating them. Different ingredients or combinations of ingredients kill different germs. Therefore you either need to select a disinfectant that works on the specific germs you are trying to get rid of, or select a broad-spectrum product that works on all of the germs that you might encounter.

How can you tell what germs a disinfectant product will kill? Check the container label or product fact sheets for an EPA Number. Most commercially available disinfectants register their effectiveness claims with the EPA.

In order to kill germs your disinfectant must stay wet on the surface for about 10 minutes. Because this time is longer than what most janitorial situations allow, a thorough precleaning of the surface is very important.

Disinfectants can harm you - always protect yourself by wearing gloves and goggles.

Use a disinfectant that kills the specific germs in your building.

Follow product mixing instructions, and make up only as much as you need.

Leave the disinfectant in place long enough for it to do its job - up to 10 minutes or so for best results

Use an ultraviolet light to see how well you are disinfecting.

Regular Disinfection - So what should you do? Clean thoroughly. Use a mild but effective disinfectant product, and use as little of it as possible. Always wear gloves and goggles to protect yourself.

It is usually enough to use an institutional grade disinfectant product for daily hard surface maintenance. In addition, milder sanitization grade products may be used on carpets or in toilet tanks where the goal is to reduce germs to a safe level (typically 0.1%), rather than completely eliminate them.

Deep Disinfection - In some cases you may need to deeply disinfect a part of your building (for example, to clean up where someone has been injured). In that situation, or if you are working in a health care setting, it is important to use a hospital grade disinfectant product. Such products accomplish a more thorough job and kill a broader range of pathogens; however, they are generally more hazardous than institutional grade disinfectants.

Combined Cleaning & Disinfection - Some products, primarily those containing quaternary ammonium chlorides, may be used for both cleaning and disinfecting. These products work best upon surfaces that are already fairly clean, or when they are used twice in a row - once to clean, then to disinfect.

Pollution Prevention Ideas - Because of the potential health risks and impacts on the environment it makes sense to minimize the amount of disinfectant that you use. There are four ways to accomplish this goal:

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1. **Select the right product.** It is best to use a product that contains the specific EPA-registered ingredients needed to kill the germs found in your building. Using the wrong disinfectant wastes your time and money, and doesn't remove the germs.
2. **Plan how often to disinfect.** Evaluate the amount of traffic your building gets and identify the surfaces that people touch most often. Use an ultraviolet light to reveal how soon germs reappear after cleaning, and then schedule your disinfection work accordingly. Also check disinfection guidelines published for your situation by EPA,Center for Disease Control, and other agencies.
3. **Control product mixing.** Using full strength disinfectants may be reassuring, but this practice is seldom warranted so it just wastes chemicals. In addition, using the full strength product is more dangerous to the user. Therefore, make sure that your janitors dilute their disinfectants according to the manufacturer's directions. Typical dilutions are 1 part concentrated product to something in the range of 125 to 500 parts water.
4. **Use correct methods.** Disinfectants need to be in contact with the germs they are intended to kill. That means the surface must first be cleaned to the point where it is free of dirt, grease, and oil. Then the disinfectant must be thoroughly applied, and left in place for 10 minutes. It may be necessary to do the work in a new sequence so as to allow this longer contact time. For example, consider doing a pre-cleaning the surfaces and applying the disinfectant throughout a restroom, and then go on to empty the trash and refill paper dispensers.

Chemical of Concern - Six ingredients are commonly used as disinfectants in today's janitorial products, with the choice depending upon both the type of building being maintained and the specific pathogens present.

Each of these ingredients can impact the janitorial user, building occupant, and the environment in general. Careful storage, mixing, and use of disinfectant products can reduce these impacts.

	Potential Impacts			
Ingredient	**User**	**Surfaces**	**Occupants**	**Environment**
Quaternary Ammonium Chlorides	Eye & skin burns	Stains floor tile	Usually none	Medium
Phenols	Eye & skin burns	Corrodes plastic surfaces	Usually none	High
Sodium Hypochlorite (Bleach)	Eye & skin burns; Vapors harmful	Corrodes metal surfaces	Affects indoor air quality	Medium to High
Hydrogen Peroxide	Eye & skin burns; Vapors harmful	Corrodes metal surfaces	Affects indoor air quality	Medium to High
Alcohols	Absorb thru skin; Vapors harmful	Usually none	Affects indoor air quality	Low to Medium
Iodine	Eye & skin burns	Stains many surfaces	Usually none	High

Source: H. Temkin, Disinfectant Overkill Tempts Managers, **http://www.cmmonline.com**

Take care to review each product's material safety data sheet for other ingredients that may harm the user. For example, be wary of combined cleaner-disinfectants that contain butoxyethanol or ethanolamine.

Where To Get More Information - For information on a specific product, refer to supplier instructions and material safety data sheets.

In addition, read "Cleaning & Maintenance Management" , "Services", and other trade magazines that contain general information about disinfectant products and their ingredients. Some of these publications also list their articles on the internet. For example, refer to **http://www.cmmonline.com**.

You should also consider contacting your health department, county hospital, or local sewer agency. If you do a lot of disinfection work it might also make sense to retain the services of an industrial hygiene professional.

Source: Janitorial Products Pollution Prevention Project **http://www.westp2net.org/janitorial/jp4.htm** Written by Thomas Barron, Carol Berg, and Linda Bookman (1999).